First created the best model by Optimize[] function. Then assess the operative workload of each patient by Discriminate[] function.

Optimize[]

```
In[•]:= Optimize[]
```

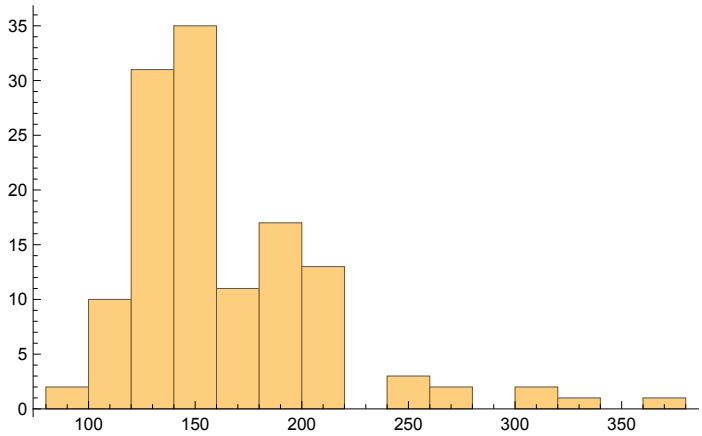
```
■Selection of the best
  combination of parameters for prediction
   by exploration of every possible
  parameter combination
   and estimation of discrimination
  rate by bootstrap simulation.

□Phase 1  Reading in Data File

A spreadsheet, haldata, is loaded.
Training data name: ORIGINALDATA, case count: 128, item count: 17
Training item name: ORIGINALNAMES, its length: 17


□Phase 2  Determination of TRAINING Data

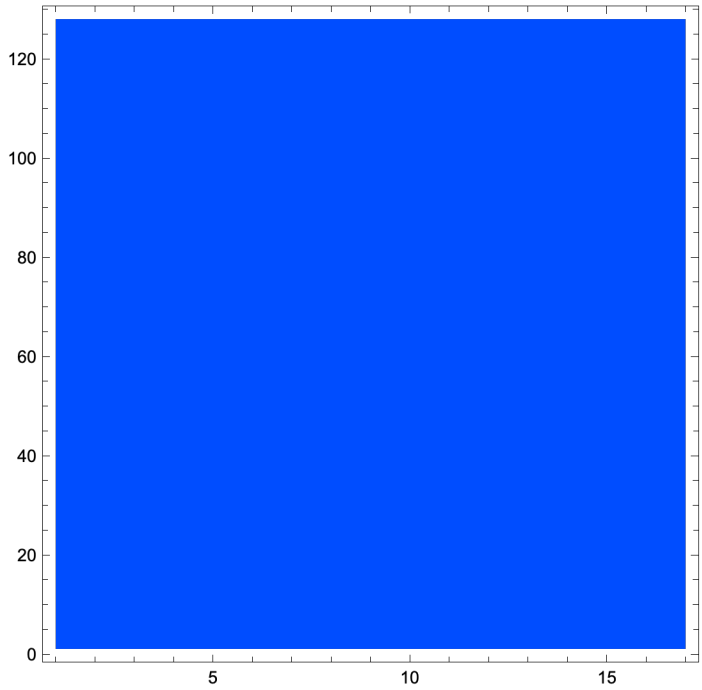
◆ 1. Determination of the TARGET variable for assessment
◆ The TARGET varible is OpeTime.  (The 17th column in the haldata.)
◇There are 20 kinds of entries in the target variable, OpeTime.
```



◆ The ORDER and NUMBERINGS of all parameters for the analysis:

```
{{1, dHt}, {2, dBw}, {3, dMale}, {4,
    dAge}, {5, ArteryNumber}, {6, MaxRenalMedialFat}, {7,
    MedianMedialRenalFat}, {8, MedianLateraRenallFat}, {9,
    AreaRenalFat}, {10, CTvalueRenalFat}, {11,
    AreaSubcutaFat}, {12, ThicknessMidlineFat}, {13,
    TP}, {14, Alb}, {15, TG}, {16, TC}, {17, OpeTime}}
```

◆ 2. Completeness Check of
the Training Data as to NUMERIC quality



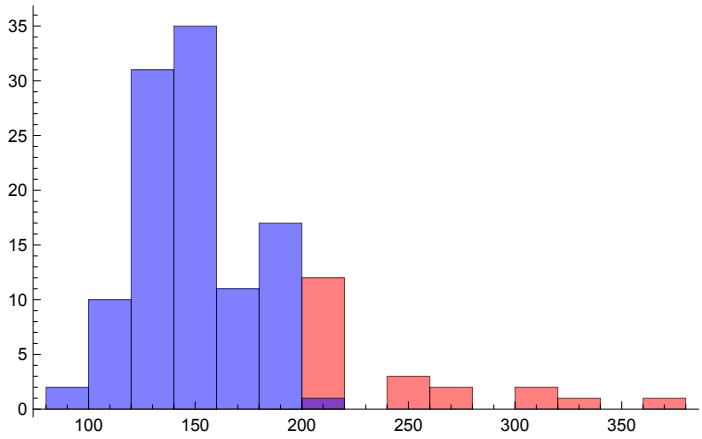
◇ Blue: numeric data, Red: non-numeric data

・The original Training Data is shown by evaluating the expression, TRAININGDATA.

◇ All the data in ORIGINALDATA is numeric.

◆ 3. Setting a THRESHOLD to
divide the TARGET values into TWO subsets.

◇ The data was divided into two subsets, 21 vs. 107.



◇ Traget value OpeTime ≥ threshold 210 in Red (n= 21),
Target value OpeTime < threshold 210 in Blue (n= 107).

◆The Target EVENT for prediction is chosen as the condition
in which OpeTime is GREATER thatn 210.

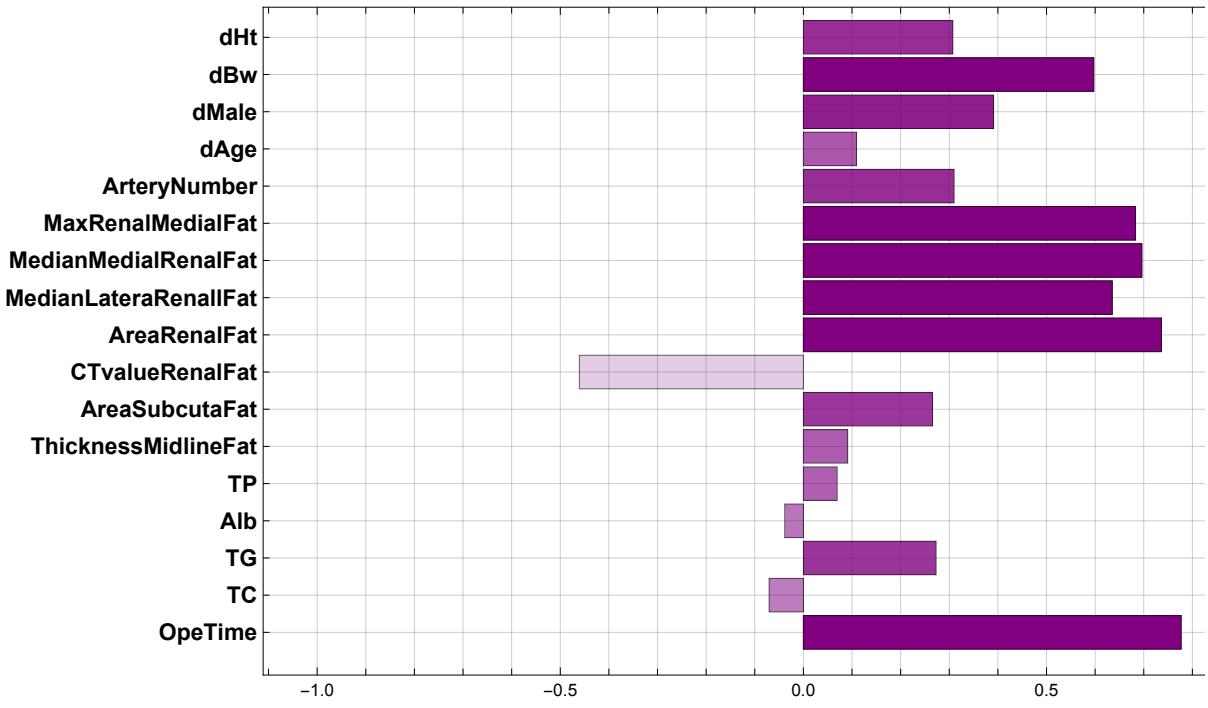
□Phase 3 Elimination Round with All Possible Cominbations Explored

Direct caliculation of
discrimination rate for training data with NLDR

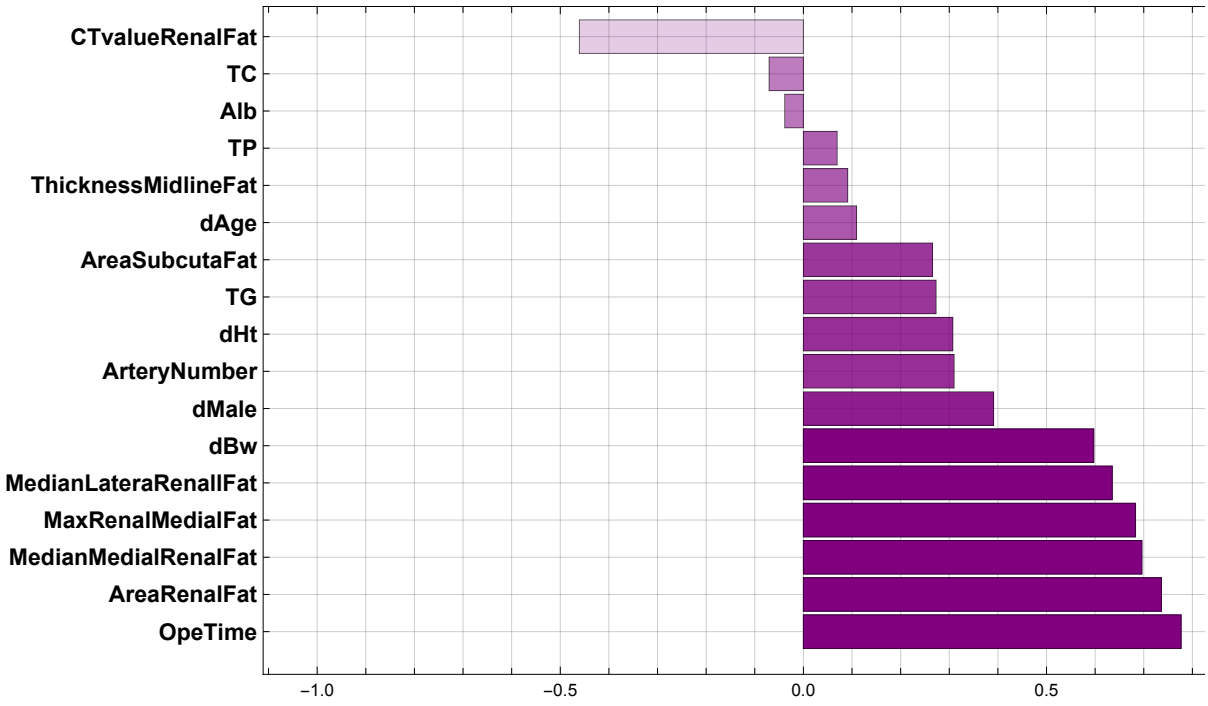
◆ Step 1. Caliculation of Discrimination Rate with NLDR

◇ File name of the Original Data: haldata (128 cases, 17 parameters)
◇ Target parameter is OpeTime. Prediction is for its entry value ≥ 210
◇Final data: 128 cases, 16 explanatory paramters

◆ Correlation Coefficients of 17 predictive factors with OpeTime



◆ **Ordered Correlation Coefficients of 17 predictive factors with OpeTime**



◇ **16 factors are selected for the elimination round.**

They are {{1, dHt}, {2, dBw}, {3, dMale}, {4, dAge}, {5, ArteryNumber}, {6, MaxRenalMedialFat}, {7, MedianMedialRenalFat}, {8, MedianLateraRenallFat}, {9, AreaRenalFat}, {10, CTvalueRenalFat}, {11, AreaSubcutaFat}, {12, ThicknessMidlineFat}, {13, TP}, {14, Alb}, {15, TG}, {16, TC}}

◆ **There are 65535 combinations**
of predictive factors in the Elimination Round.

Total number of subsets possible:
65535, Number of upper 1% of all: 655

```
Starting time: {2019, 4, 26, 13, 6, 14.578647}

Present time: {2019, 4, 26, 13, 6, 46.347850}
10% of process has been done.
Consumed time so far: 0 hour 0 min 32 sec
Time interval: 0 hour 0 min 32 sec

Present time: {2019, 4, 26, 13, 7, 23.633745}
20% of process has been done.
Consumed time so far: 0 hour 1 min 9 sec
Time interval: 0 hour 0 min 37 sec
Estimated finishing time: {2019, 4, 26, 13, 22, 19.8862}
Estimated remaining time: 0 hour 14 min 56 sec

Present time: {2019, 4, 26, 13, 8, 2.918409}
30% of process has been done.
Consumed time so far: 0 hour 1 min 48 sec
Time interval: 0 hour 0 min 39 sec
Estimated finishing time: {2019, 4, 26, 13, 13, 33.8766}
Estimated remaining time: 0 hour 5 min 31 sec

Present time: {2019, 4, 26, 13, 8, 45.870910}
40% of process has been done.
Consumed time so far: 0 hour 2 min 31 sec
Time interval: 0 hour 0 min 43 sec
Estimated finishing time: {2019, 4, 26, 13, 14, 0.9989}
Estimated remaining time: 0 hour 5 min 15 sec

Present time: {2019, 4, 26, 13, 9, 37.643513}
50% of process has been done.
Consumed time so far: 0 hour 3 min 23 sec
Time interval: 0 hour 0 min 52 sec
Estimated finishing time: {2019, 4, 26, 13, 14, 54.2442}
```

```
Estimated remaining time: 0 hour 5 min 17 sec

Present time: {2019, 4, 26, 13, 10, 23.692402}
60% of process has been done.
Consumed time so far: 0 hour 4 min 9 sec
Time interval: 0 hour 0 min 46 sec
Estimated finishing time: {2019, 4, 26, 13, 14, 20.3372}
Estimated remaining time: 0 hour 3 min 57 sec

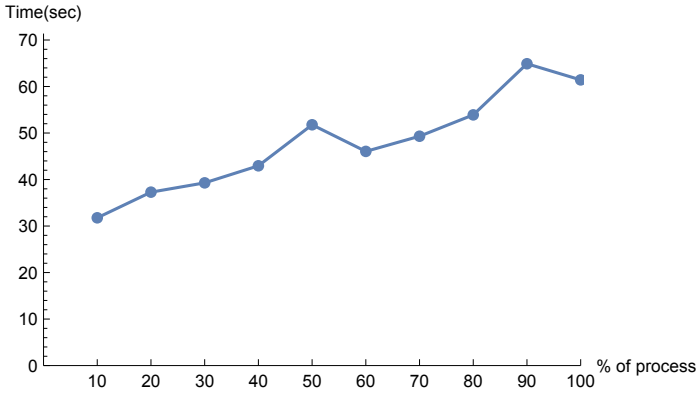
Present time: {2019, 4, 26, 13, 11, 13.002965}
70% of process has been done.
Consumed time so far: 0 hour 4 min 58 sec
Time interval: 0 hour 0 min 49 sec
Estimated finishing time: {2019, 4, 26, 13, 14, 4.6972}
Estimated remaining time: 0 hour 2 min 52 sec

Present time: {2019, 4, 26, 13, 12, 6.902696}
80% of process has been done.
Consumed time so far: 0 hour 5 min 52 sec
Time interval: 0 hour 0 min 54 sec
Estimated finishing time: {2019, 4, 26, 13, 14, 2.1011}
Estimated remaining time: 0 hour 1 min 55 sec

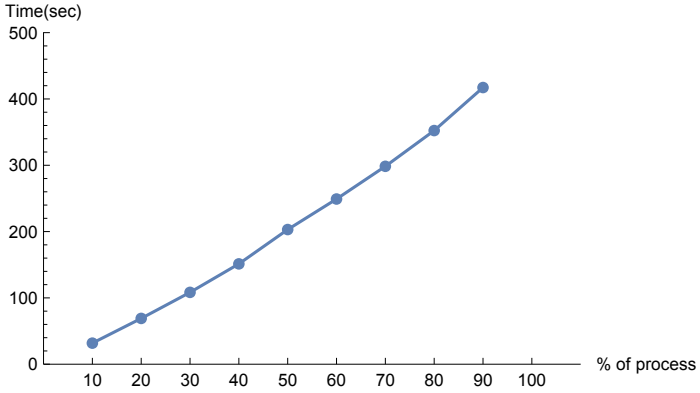
Present time: {2019, 4, 26, 13, 13, 11.796768}
90% of process has been done.
Consumed time so far: 0 hour 6 min 57 sec
Time interval: 0 hour 1 min 5 sec
Estimated finishing time: {2019, 4, 26, 13, 14, 10.4248}
Estimated remaining time: 0 hour 0 min 59 sec

Ending time: {2019, 4, 26, 13, 14, 13.222528}
Consumbed time: 0 hour 7 min 59 sec

Line plot of time interval of each 10% of proccess
```



Line plot of real caliculation time



Top 10 cases with highest Positive predictive rate:

	Combination of Variables	2x2Table,	{PPV, NPV},	{Sensitivity, Spec
1	{CTvalueRenalFat, AreaSubcutaFat}	{{{1, 0}, {20, 107}},	{100., 84.252},	{4.7619
2	{CTvalueRenalFat, TC}	{{{1, 0}, {20, 107}},	{100., 84.252},	{4.7619
3	{AreaSubcutaFat, ThicknessMidlineFat}	{{{3, 0}, {18, 107}},	{100., 85.6},	{14.2857,
4	{AreaSubcutaFat, TP}	{{{2, 0}, {19, 107}},	{100., 84.9206},	{9.5238
5	{AreaSubcutaFat, Alb}	{{{2, 0}, {19, 107}},	{100., 84.9206},	{9.5238
6	{AreaSubcutaFat, TC}	{{{2, 0}, {19, 107}},	{100., 84.9206},	{9.5238
7	{dHt, dAge, CTvalueRenalFat}	{{{1, 0}, {20, 107}},	{100., 84.252},	{4.7619
8	{dHt, dAge, Alb}	{{{1, 0}, {20, 107}},	{100., 84.252},	{4.7619
9	{dHt, dAge, TG}	{{{1, 0}, {20, 107}},	{100., 84.252},	{4.7619
10	{dHt, dAge, TC}	{{{1, 0}, {20, 107}},	{100., 84.252},	{4.7619

Top 10 cases with highest Negative predictive rate:

	Combination of Variables
1	{dAge, ArteryNumber, MaxRenalMedialFat, AreaSubcutaFat, ThicknessMi
2	{ArteryNumber, MaxRenalMedialFat, MedianMedialRenalFat, AreaRenalFat, Ar
3	{dBw, dAge, ArteryNumber, MaxRenalMedialFat, CTvalueRenalFat, AreaSu
4	{dBw, dAge, ArteryNumber, MaxRenalMedialFat, AreaSubcutaFat, T
5	{dBw, ArteryNumber, MaxRenalMedialFat, MedianLateraRenallFat, CTvalueRenalFa
6	{dAge, ArteryNumber, MaxRenalMedialFat, MedianMedialRenalFat, AreaRenalFat, CTvalu
7	{dAge, ArteryNumber, MaxRenalMedialFat, MedianMedialRenalFat, AreaRenalFat, CTvalueR
8	{dAge, ArteryNumber, MaxRenalMedialFat, MedianLateraRenallFat, AreaSubcutaFat,
9	{dAge, ArteryNumber, MaxRenalMedialFat, CTvalueRenalFat, AreaSubcutaFat, Thi
10	{dAge, ArteryNumber, MaxRenalMedialFat, CTvalueRenalFat, AreaSubcutaFat, Thic

Top 10 cases with highest Total hit rate (accuracy):

	Combination of Variables
1	{dAge, ArteryNumber, MaxRenalMedialFat, AreaSubcutaFat, ThicknessMi
2	{ArteryNumber, MaxRenalMedialFat, MedianMedialRenalFat, AreaRenalFat, Ar
3	{dBw, dAge, ArteryNumber, MaxRenalMedialFat, CTvalueRenalFat, AreaSu
4	{dBw, dAge, ArteryNumber, MaxRenalMedialFat, AreaSubcutaFat, T
5	{dBw, ArteryNumber, MaxRenalMedialFat, MedianLateraRenallFat, CTvalueRenalFa
6	{dAge, ArteryNumber, MaxRenalMedialFat, MedianMedialRenalFat, AreaRenalFat, CTvalu
7	{dAge, ArteryNumber, MaxRenalMedialFat, MedianMedialRenalFat, AreaRenalFat, CTvalueR
8	{dAge, ArteryNumber, MaxRenalMedialFat, MedianLateraRenallFat, AreaSubcutaFat,
9	{dAge, ArteryNumber, MaxRenalMedialFat, CTvalueRenalFat, AreaSubcutaFat, Thi
10	{dAge, ArteryNumber, MaxRenalMedialFat, CTvalueRenalFat, AreaSubcutaFat, Thic

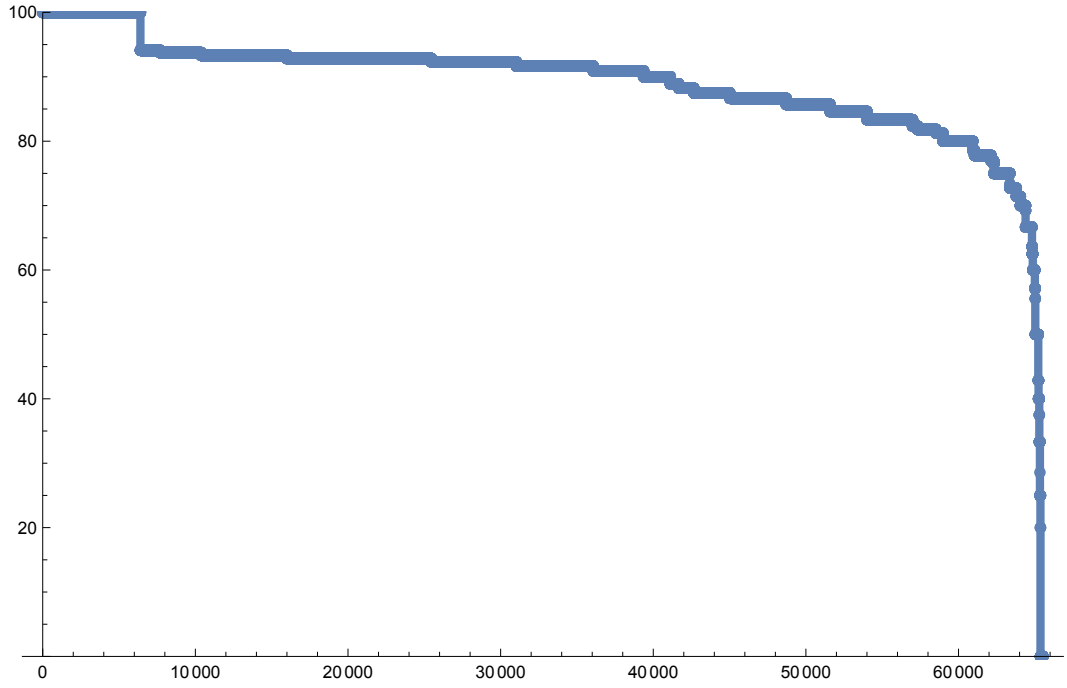
The mean value of Positive predictive rates in best 1 % cases(N=655): 100. ± 0. %

The mean value of Negative predictive
rates in best 1 % cases(N=655): 95.52 ± 0.01969 %

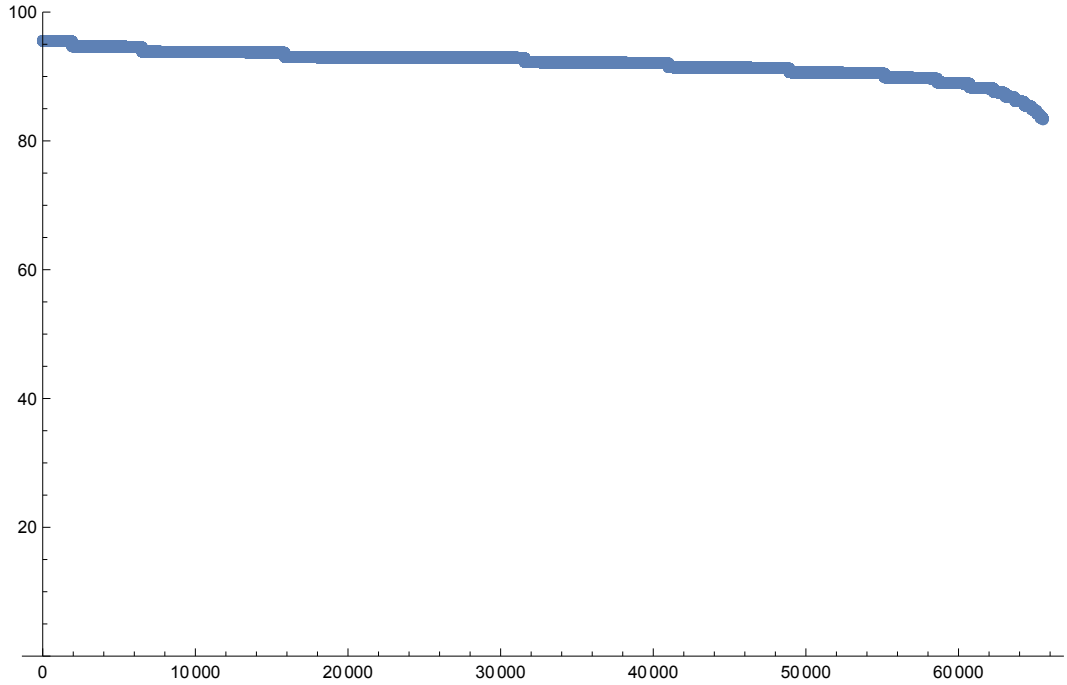
The mean value of Total hit rates
(accuracy) in best 1 % cases(N=655): 95.78 ± 0.3825 %

◆ Discrimination rates in the descending order for 65535 combinations out of 16 paramters

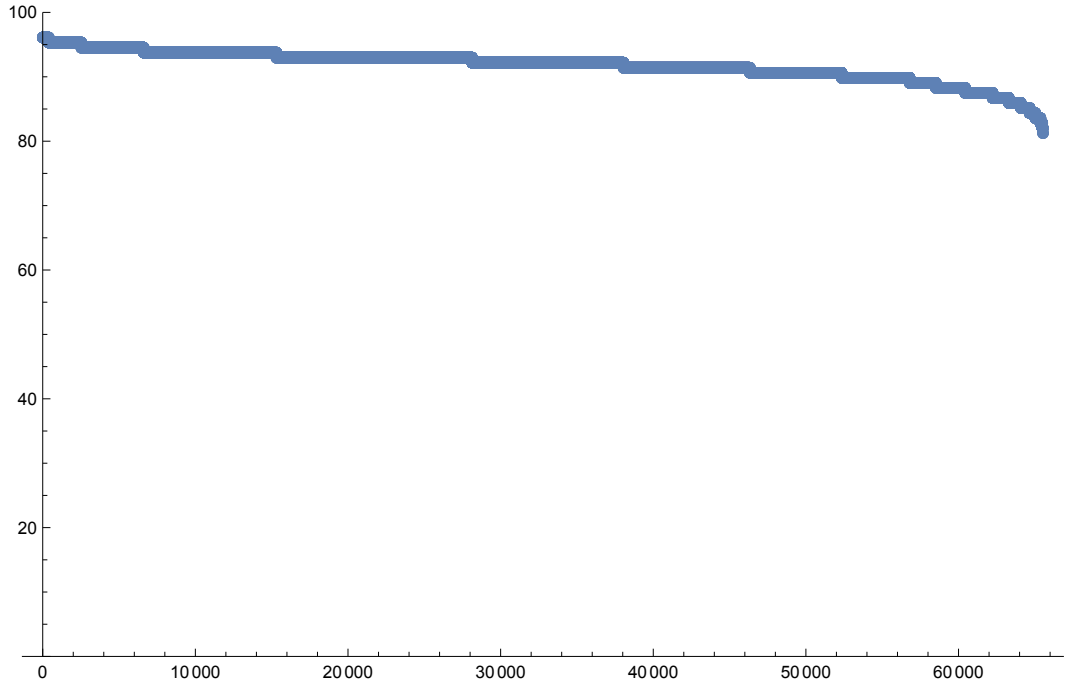
◇ Discrimination rates predicting for OpeTime to be ≥ 210



◇ **Positive predictive rates for OpeTime to be ≥ 210**



◇ **Negative predictive rates for OpeTime to be < 210**



◇ **Discrimination rates predicting total accuracy for OpeTime**

◇ **Results are expressed as follows.**

```
Top 10 of Positive predictive cases = TOP10D
Top 10 of Negative predictive cases = TOP10E
Top 10 of Overall Accuracy = TOP10T
Top 1% of Positive predictive = TOP1PD
Top 1% of Negative predictive = TOP1PE
Top 1% of Overall Accuracy = TOP1PT
All Positive Predictive result sorted = SORTEDPOS
All Negative Predictive resultsorted = SORTEDNEG
All Overall Accuracy result sorted = SORTEDTOTAL
```

◆ **Step 2. Narrowing Down of Candidates by Selecting Top Ranks**

◆ **65535 all possible combinations of factors were examined**

◇ **100 sets of predictive factors are chosen for the final round.**

Phase 4 Final round for selecting the BEST combination of factors

Estimation of discrimination rate for future data with the .632 Estimator

◇ The Bootsrap count is 200 in the .632 Estimator for each combination of predictive factors.

```
Starting time: {2019, 4, 26, 13, 15, 0.408642}
1.% completed.  Time elapsed:
  0 hour 1 min 5 sec   (present time: {2019, 4, 26, 13, 16, 5.610978})

2.% completed.  Time elapsed:
  0 hour 2 min 9 sec   (present time: {2019, 4, 26, 13, 17, 9.029064})

3.% completed.  Time elapsed: 0 hour 3 min 26 sec
  (present time: {2019, 4, 26, 13, 18, 26.535751})

4.% completed.  Time elapsed: 0 hour 4 min 37 sec
  (present time: {2019, 4, 26, 13, 19, 37.311378})

5.% completed.  Time elapsed: 0 hour 5 min 48 sec
  (present time: {2019, 4, 26, 13, 20, 48.686265})

6.% completed.  Time elapsed: 0 hour 6 min 59 sec
  (present time: {2019, 4, 26, 13, 21, 59.350635})

7.% completed.  Time elapsed:
  0 hour 8 min 9 sec   (present time: {2019, 4, 26, 13, 23, 9.862316})

8.% completed.  Time elapsed: 0 hour 9 min 20 sec
  (present time: {2019, 4, 26, 13, 24, 19.948360})

9.% completed.  Time elapsed: 0 hour 10 min 29 sec
  (present time: {2019, 4, 26, 13, 25, 29.621339})

10.% completed.  Time elapsed:
  0 hour 11 min 44 sec   (present time: {2019, 4, 26, 13, 26, 44.484518})

11.% completed.  Time elapsed:
  0 hour 12 min 54 sec   (present time: {2019, 4, 26, 13, 27, 54.586104})

12.% completed.  Time elapsed:
  0 hour 14 min 4 sec   (present time: {2019, 4, 26, 13, 29, 4.093216})

13.% completed.  Time elapsed:
  0 hour 15 min 15 sec   (present time: {2019, 4, 26, 13, 30, 15.038871})
```

```
14.% completed.  Time elapsed:
  0 hour 16 min 24 sec   (present time: {2019, 4, 26, 13, 31, 24.736854})

15.% completed.  Time elapsed:
  0 hour 17 min 33 sec   (present time: {2019, 4, 26, 13, 32, 33.789316})

16.% completed.  Time elapsed:
  0 hour 18 min 43 sec   (present time: {2019, 4, 26, 13, 33, 43.652748})

17.% completed.  Time elapsed:
  0 hour 19 min 53 sec   (present time: {2019, 4, 26, 13, 34, 53.686127})

18.% completed.  Time elapsed:
  0 hour 21 min 3 sec   (present time: {2019, 4, 26, 13, 36, 3.222670})

19.% completed.  Time elapsed:
  0 hour 22 min 14 sec   (present time: {2019, 4, 26, 13, 37, 14.747938})

20.% completed.  Time elapsed:
  0 hour 23 min 32 sec   (present time: {2019, 4, 26, 13, 38, 32.165908})

21.% completed.  Time elapsed:
  0 hour 24 min 45 sec   (present time: {2019, 4, 26, 13, 39, 45.436581})

22.% completed.  Time elapsed:
  0 hour 26 min 4 sec   (present time: {2019, 4, 26, 13, 41, 4.689551})

23.% completed.  Time elapsed:
  0 hour 27 min 23 sec   (present time: {2019, 4, 26, 13, 42, 23.736881})

24.% completed.  Time elapsed:
  0 hour 28 min 41 sec   (present time: {2019, 4, 26, 13, 43, 41.387366})

25.% completed.  Time elapsed:
  0 hour 29 min 57 sec   (present time: {2019, 4, 26, 13, 44, 57.673091})

26.% completed.  Time elapsed:
  0 hour 31 min 14 sec   (present time: {2019, 4, 26, 13, 46, 14.753560})

27.% completed.  Time elapsed:
  0 hour 32 min 33 sec   (present time: {2019, 4, 26, 13, 47, 33.389161})
```

```
28.% completed.  Time elapsed:
  0 hour 33 min 51 sec   (present time: {2019, 4, 26, 13, 48, 51.136040})

29.% completed.  Time elapsed:
  0 hour 35 min 8 sec   (present time: {2019, 4, 26, 13, 50, 8.034386})

30.% completed.  Time elapsed:
  0 hour 36 min 31 sec   (present time: {2019, 4, 26, 13, 51, 31.198341})

31.% completed.  Time elapsed:
  0 hour 37 min 47 sec   (present time: {2019, 4, 26, 13, 52, 47.471901})

32.% completed.  Time elapsed:
  0 hour 39 min 4 sec   (present time: {2019, 4, 26, 13, 54, 4.572784})

33.% completed.  Time elapsed:
  0 hour 40 min 22 sec   (present time: {2019, 4, 26, 13, 55, 22.200100})

34.% completed.  Time elapsed:
  0 hour 41 min 40 sec   (present time: {2019, 4, 26, 13, 56, 40.585923})

35.% completed.  Time elapsed:
  0 hour 42 min 59 sec   (present time: {2019, 4, 26, 13, 57, 59.616094})

36.% completed.  Time elapsed:
  0 hour 44 min 18 sec   (present time: {2019, 4, 26, 13, 59, 18.201673})

37.% completed.  Time elapsed:
  0 hour 45 min 37 sec   (present time: {2019, 4, 26, 14, 0, 37.358916})

38.% completed.  Time elapsed:
  0 hour 46 min 55 sec   (present time: {2019, 4, 26, 14, 1, 55.429137})

39.% completed.  Time elapsed:
  0 hour 48 min 12 sec   (present time: {2019, 4, 26, 14, 3, 12.314111})

40.% completed.  Time elapsed:
  0 hour 49 min 34 sec   (present time: {2019, 4, 26, 14, 4, 34.858085})

41.% completed.  Time elapsed:
  0 hour 50 min 51 sec   (present time: {2019, 4, 26, 14, 5, 51.493378})
```

```
42.% completed.  Time elapsed:
  0 hour 52 min 8 sec   (present time: {2019, 4, 26, 14, 7, 8.824795})

43.% completed.  Time elapsed:
  0 hour 53 min 28 sec   (present time: {2019, 4, 26, 14, 8, 28.596197})

44.% completed.  Time elapsed:
  0 hour 54 min 50 sec   (present time: {2019, 4, 26, 14, 9, 50.417132})

45.% completed.  Time elapsed:
  0 hour 56 min 8 sec   (present time: {2019, 4, 26, 14, 11, 8.839355})

46.% completed.  Time elapsed:
  0 hour 57 min 28 sec   (present time: {2019, 4, 26, 14, 12, 28.189334})

47.% completed.  Time elapsed:
  0 hour 58 min 44 sec   (present time: {2019, 4, 26, 14, 13, 44.347875})

48.% completed.  Time elapsed:
  1 hour 0 min 0 sec   (present time: {2019, 4, 26, 14, 15, 0.419818})

49.% completed.  Time elapsed:
  1 hour 1 min 16 sec   (present time: {2019, 4, 26, 14, 16, 16.607343})

50.% completed.  Time elapsed:
  1 hour 2 min 36 sec   (present time: {2019, 4, 26, 14, 17, 36.431202})

51.% completed.  Time elapsed:
  1 hour 3 min 54 sec   (present time: {2019, 4, 26, 14, 18, 54.623303})

52.% completed.  Time elapsed:
  1 hour 5 min 12 sec   (present time: {2019, 4, 26, 14, 20, 12.046196})

53.% completed.  Time elapsed:
  1 hour 6 min 31 sec   (present time: {2019, 4, 26, 14, 21, 31.893427})

54.% completed.  Time elapsed:
  1 hour 7 min 49 sec   (present time: {2019, 4, 26, 14, 22, 49.507947})

55.% completed.  Time elapsed:
  1 hour 9 min 6 sec   (present time: {2019, 4, 26, 14, 24, 5.975624})
```

```
56.% completed.  Time elapsed:
  1 hour 10 min 24 sec   (present time: {2019, 4, 26, 14, 25, 24.348542})

57.% completed.  Time elapsed:
  1 hour 11 min 45 sec   (present time: {2019, 4, 26, 14, 26, 45.220234})

58.% completed.  Time elapsed:
  1 hour 13 min 2 sec   (present time: {2019, 4, 26, 14, 28, 2.292463})

59.% completed.  Time elapsed:
  1 hour 14 min 19 sec   (present time: {2019, 4, 26, 14, 29, 19.645438})

60.% completed.  Time elapsed:
  1 hour 15 min 42 sec   (present time: {2019, 4, 26, 14, 30, 42.216504})

61.% completed.  Time elapsed:
  1 hour 16 min 60 sec   (present time: {2019, 4, 26, 14, 32, 0.091270})

62.% completed.  Time elapsed:
  1 hour 18 min 23 sec   (present time: {2019, 4, 26, 14, 33, 23.307938})

63.% completed.  Time elapsed:
  1 hour 19 min 44 sec   (present time: {2019, 4, 26, 14, 34, 44.402338})

64.% completed.  Time elapsed:
  1 hour 21 min 0 sec   (present time: {2019, 4, 26, 14, 36, 0.660255})

65.% completed.  Time elapsed:
  1 hour 22 min 16 sec   (present time: {2019, 4, 26, 14, 37, 16.666910})

66.% completed.  Time elapsed:
  1 hour 23 min 35 sec   (present time: {2019, 4, 26, 14, 38, 34.979523})

67.% completed.  Time elapsed:
  1 hour 24 min 51 sec   (present time: {2019, 4, 26, 14, 39, 50.927312})

68.% completed.  Time elapsed:
  1 hour 26 min 8 sec   (present time: {2019, 4, 26, 14, 41, 7.925781})

69.% completed.  Time elapsed:
  1 hour 27 min 25 sec   (present time: {2019, 4, 26, 14, 42, 25.188661})
```

```
70.% completed.  Time elapsed:
  1 hour 28 min 42 sec   (present time: {2019, 4, 26, 14, 43, 42.462458})

71.% completed.  Time elapsed:
  1 hour 29 min 59 sec   (present time: {2019, 4, 26, 14, 44, 58.989410})

72.% completed.  Time elapsed:
  1 hour 31 min 15 sec   (present time: {2019, 4, 26, 14, 46, 15.333576})

73.% completed.  Time elapsed:
  1 hour 32 min 33 sec   (present time: {2019, 4, 26, 14, 47, 33.709672})

74.% completed.  Time elapsed:
  1 hour 33 min 50 sec   (present time: {2019, 4, 26, 14, 48, 50.736871})

75.% completed.  Time elapsed:
  1 hour 35 min 9 sec   (present time: {2019, 4, 26, 14, 50, 9.561499})

76.% completed.  Time elapsed:
  1 hour 36 min 28 sec   (present time: {2019, 4, 26, 14, 51, 28.584762})

77.% completed.  Time elapsed:
  1 hour 37 min 44 sec   (present time: {2019, 4, 26, 14, 52, 44.688335})

78.% completed.  Time elapsed:
  1 hour 39 min 8 sec   (present time: {2019, 4, 26, 14, 54, 8.395428})

79.% completed.  Time elapsed:
  1 hour 40 min 33 sec   (present time: {2019, 4, 26, 14, 55, 33.511558})

80.% completed.  Time elapsed:
  1 hour 41 min 57 sec   (present time: {2019, 4, 26, 14, 56, 57.349068})

81.% completed.  Time elapsed:
  1 hour 43 min 20 sec   (present time: {2019, 4, 26, 14, 58, 20.234680})

82.% completed.  Time elapsed:
  1 hour 44 min 46 sec   (present time: {2019, 4, 26, 14, 59, 46.103010})

83.% completed.  Time elapsed:
  1 hour 46 min 13 sec   (present time: {2019, 4, 26, 15, 1, 13.177238})
```

```
84.% completed.  Time elapsed:
  1 hour 47 min 45 sec   (present time: {2019, 4, 26, 15, 2, 45.728318})

85.% completed.  Time elapsed:
  1 hour 49 min 18 sec   (present time: {2019, 4, 26, 15, 4, 18.443494})

86.% completed.  Time elapsed:
  1 hour 50 min 45 sec   (present time: {2019, 4, 26, 15, 5, 45.876156})

87.% completed.  Time elapsed:
  1 hour 52 min 10 sec   (present time: {2019, 4, 26, 15, 7, 10.180419})

88.% completed.  Time elapsed:
  1 hour 53 min 36 sec   (present time: {2019, 4, 26, 15, 8, 36.261530})

89.% completed.  Time elapsed:
  1 hour 55 min 0 sec   (present time: {2019, 4, 26, 15, 10, 0.717041})

90.% completed.  Time elapsed:
  1 hour 56 min 27 sec   (present time: {2019, 4, 26, 15, 11, 27.195034})

91.% completed.  Time elapsed:
  1 hour 57 min 55 sec   (present time: {2019, 4, 26, 15, 12, 55.839535})

92.% completed.  Time elapsed:
  1 hour 59 min 23 sec   (present time: {2019, 4, 26, 15, 14, 22.971800})

93.% completed.  Time elapsed:
  2 hour 0 min 50 sec   (present time: {2019, 4, 26, 15, 15, 50.740056})

94.% completed.  Time elapsed:
  2 hour 2 min 14 sec   (present time: {2019, 4, 26, 15, 17, 14.260011})

95.% completed.  Time elapsed:
  2 hour 3 min 39 sec   (present time: {2019, 4, 26, 15, 18, 39.328774})

96.% completed.  Time elapsed:
  2 hour 5 min 13 sec   (present time: {2019, 4, 26, 15, 20, 13.625634})

97.% completed.  Time elapsed:
  2 hour 6 min 40 sec   (present time: {2019, 4, 26, 15, 21, 40.797259})
```

```
98.% completed.  Time elapsed:
  2 hour 8 min 8 sec   (present time: {2019, 4, 26, 15, 23, 8.644890})

99.% completed.  Time elapsed:
  2 hour 9 min 36 sec   (present time: {2019, 4, 26, 15, 24, 36.366760})

100.% completed.  Time elapsed:
  2 hour 11 min 2 sec   (present time: {2019, 4, 26, 15, 26, 2.554172})

Output = A list of {{A selected set of predictive factors},{{Total Accuracy,
  Positive Predictive rate, Negative Predictive rate, Sensitivity, Specificity},
  0.632*{∈1-err, ∈2-perr, ∈3-perrd, ∈4-perrse, ∈5-perrsp},{various parameters}}
```

◇ **The result of 100 sets of predictive factors estimated by The .632 Estimator is expressed as FINALRESULT.**

■ The BEST 5 Combinations of factors for prediction and their Discrimination rates

No 1.
{dAge, ArteryNumber, MaxRenalMedialFat, MedianMedialRenalFat, AreaRenalFat, CTvalueRenalFat, AreaSubcutaFat, TP, TC}
Total Estimated Accuracy 94.6%, Positive Predictive rate 95.79%,
Negative Predictive rate 94.43%, Sensitivity 68.8%, Specificity 99.46%

No 2.
{dAge, ArteryNumber, MaxRenalMedialFat, MedianMedialRenalFat, AreaRenalFat, CTvalueRenalFat, AreaSubcutaFat, Alb, TC}
Total Estimated Accuracy 94.55%, Positive Predictive rate 94.79%,
Negative Predictive rate 94.5%, Sensitivity 70.24%, Specificity 99.27%

No 3.
{dAge, ArteryNumber, MaxRenalMedialFat, MedianLateraRenallFat, CTvalueRenalFat, AreaSubcutaFat, TP, Alb, TC}
Total Estimated Accuracy 94.32%, Positive Predictive rate 93.39%, Negative Predictive rate 94.43%, Sensitivity 69.93%, Specificity 99.05%

No 4.
{dBw, ArteryNumber, MaxRenalMedialFat, MedianLateraRenallFat, CTvalueRenalFat, AreaSubcutaFat, TP, TG, TC}
Total Estimated Accuracy 94.28%, Positive Predictive rate 91.65%, Negative Predictive rate 94.63%, Sensitivity 70.08%, Specificity 98.82%

No 5. {dHt, dBw, dAge, ArteryNumber, MaxRenalMedialFat, MedianLateraRenallFat, CTvalueRenalFat, AreaSubcutaFat, TP, TC}
Total Estimated Accuracy 94.2%, Positive Predictive rate 93.75%, Negative Predictive rate 94.23%, Sensitivity 67.99%, Specificity 99.18%

□ The Final Explanatory data is expressed as SAMPLEDATA.

◆The output is {predictive variables, variable names, response sign, response name, response variable, {3 paramters}}
The are expressed as BESTDATA, BESTITEMS, BESTSIGN, TARGETNAME, RESPONSEDATA.
The output in total is expressed as BESTDATASET.

Out[•]=
```
{{{59, 1, 9.52, 9.5, 22.91, -90.54, 54.44, 7, 186},
  {64, 1, 4.42, 4.2, 5.91, -82.77, 96.63, 6.7, 257},
  {57, 2, 9.87, 8.7, 17.05, -83.21, 73.75, 6.6, 200},
  {55, 1, 4.73, 4.2, 7.46, -78.16, 65.74, 8, 223},
  {58, 1, 11.86, 6.7, 21.35, -98.19, 202.24, 7.8, 230},
  {65, 3, 5.12, 2.3, 8.34, -76.93, 38.65, 7.1, 243},
  {47, 2, 5.71, 3.1, 5.47, -74.49, 106.08, 7, 164},
```

```
{43, 2, 20.5, 15.8, 24.37, -89.61, 107.07, 7.3, 194},
{39, 1, 2.51, 1.9, 1.64, -58.86, 39.79, 7.3, 194},
{64, 1, 7.78, 6.5, 13.11, -88.69, 117.05, 6.5, 201},
{48, 2, 6.23, 2.9, 4.25, -80.29, 134.22, 7.7, 163},
{58, 2, 11.67, 11.3, 28.43, -96.15, 90.75, 7.2, 210},
{52, 1, 8.14, 4.7, 11.18, -96.46, 100.84, 7.1, 196},
{52, 2, 16.93, 12.7, 22.57, -87.61, 74.68, 7.4, 187},
{57, 1, 8.64, 5.6, 12.88, -96.41, 161.97, 6.6, 229},
{46, 1, 3.97, 2.1, 4.11, -68.87, 98.89, 7.2, 176},
{47, 2, 10.24, 7.5, 14.27, -93.47, 100.44, 7.4, 200},
{45, 1, 3.63, 5.9, 6.2, -83.11, 112.43, 6.6, 197},
{58, 2, 4.84, 1.9, 4.94, -79.79, 76.97, 6.5, 210},
{46, 1, 5.81, 2.1, 2.41, -86.16, 16.82, 7.1, 199},
{56, 1, 9, 5, 11.87, -89, 151.83, 7.3, 176},
{57, 1, 15.93, 15.6, 45.39, -95.03, 230.49, 7.2, 239},
{57, 4, 8.94, 8.4, 12.13, -93.64, 131.44, 7.4, 181},
{58, 1, 8.41, 6.6, 9.58, -79.67, 73.37, 7.3, 214},
{28, 1, 5.16, 3.4, 2.31, -88.59, 78.2, 8, 165},
{54, 2, 5.27, 3.9, 6.92, -85.27, 104.97, 7.3, 228},
{67, 1, 6.78, 4.8, 5.85, -79.71, 69.17, 7, 211},
{76, 1, 8.12, 4.5, 14.55, -88.72, 86.2, 6.6, 174},
{62, 1, 2.55, 1.9, 2.89, -72.22, 70.25, 6.7, 216},
{57, 3, 17.58, 15.5, 39.93, -96.34, 78.36, 6.8, 203},
{70, 2, 9.44, 7.6, 23.63, -99.53, 86.21, 7.1, 185},
{59, 1, 7.13, 5.2, 25.76, -103.37, 114.51, 7.8, 243},
{66, 1, 8.01, 5.1, 18.76, -90.03, 56.35, 6.2, 227},
{41, 1, 5.13, 4.4, 7.46, -69.525, 41.13, 7.2, 160},
{21, 1, 5, 3, 1.53, -76.58, 21.9, 7, 219},
{55, 2, 4.94, 5, 6.37, -88.31, 83.62, 7.1, 169},
{68, 1, 12.89, 10.7, 26.48, -94.42, 97.06, 7.5, 256},
{54, 1, 4.54, 2.1, 8.54, -83.13, 132.66, 6.8, 216},
{70, 1, 9.38, 7.6, 13.59, -92.121, 118.39, 7.6, 257},
{45, 1, 8.75, 4.9, 8.91, -79.77, 48.9, 7.1, 221},
{48, 1, 3.11, 1.2, 1.51, -70.36, 55.68, 6.9, 228},
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{41, 2, 11.51, 7.4, 25.83, -92.19, 99.83, 7.5, 145},
{65, 1, 5.15, 2.5, 6.74, -86.14, 65.86, 7, 169},
{66, 2, 12.28, 5.9, 13.66, -85.08, 85.58, 7.1, 268},
{52, 1, 2.32, 1.5, 3.98, -97.12, 104.91, 7.2, 201},
{65, 1, 6.49, 5, 11.21, -83.86, 103.3, 7.5, 269},
{66, 1, 4.04, 1.9, 3.32, -85.93, 45.4, 6.9, 208},
{55, 1, 11.03, 7.6, 22.36, -96.57, 93.42, 7.2, 215},
{49, 1, 6.94, 2.4, 1.42, -70.26, 95.45, 7.3, 198},
{47, 1, 5.65, 3.9, 13.01, -85.81, 53.24, 7, 227},
{51, 1, 14.58, 13.7, 20.83, -97.57, 84.11, 7.5, 234},
{38, 1, 10.14, 4.3, 18.12, -85.35, 103.37, 7, 221},
{55, 2, 9.51, 6.1, 13.26, -87.72, 61.75, 6.8, 238},
```

```
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{62, 1, 10.6, 4.1, 24.29, -88.87, 71.84, 6.8, 162},
{66, 3, 6.73, 3.8, 11.15, -96.83, 91.4, 7.3, 229},
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{28, 1, 8.17, 6.3, 11.43, -87.75, 75.12, 7, 212},
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{53, 1, 3.38, 2.6, 6.45, -57.57, 26.92, 6.7, 169},
{54, 1, 5.17, 3.8, 5.27, -75.65, 85.67, 7.2, 257},
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{47, 2, 6.23, 7.43, 4.5134, -81.925, 81.3499, 6.4, 223},
{54, 1, 4.88, 4.5, 8.5828, -77.29, 120.537, 7.6, 257},
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{57, 1, 5.66, 4.55, 5.8242, -70.885, 120.844, 7.4, 212},
{36, 2, 13.48, 11.32, 21.5158, -94.86, 254.962, 6.8, 237},
{73, 1, 9.88, 10.63, 14.2188, -90.01, 118.688, 7.1, 210},
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{52, 1, 10.72, 10.97, 24.739, -96.16, 82.9141, 7.3, 212},
{70, 2, 19.29, 19.77, 36.5941, -92.56, 101.389, 6.6, 189},
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{55, 1, 4.67, 5.41, 7.0862, -97.73, 103.106, 6.6, 209},
{72, 2, 4.46, 4.7, 6.9252, -75.21, 147.305, 7, 164},
{72, 2, 10.74, 10.7, 24.61, -97.13, 65.13, 6.6, 169},
{66, 2, 8.45, 7.15, 21.008, -71.68, 54.1798, 6.6, 194},
{55, 1, 6.21, 6.67, 17.8848, -87.01, 123.79, 6.9, 225},
{42, 2, 5.76, 7.32, 11.8398, -87.25, 148.699, 7.9, 226},
{36, 1, 15.42, 16.47, 24.1013, -79.1, 93.7155, 7.3, 285},
{50, 2, 3.44, 2.53, 4.5299, -81.675, 98.9548, 6.7, 178},
{59, 2, 17.38, 15.52, 33.2769, -103.02, 143.557, 7.1, 255},
{67, 1, 5.38, 9.54, 18.4258, -92.39, 120.672, 7.2, 239},
{63, 1, 6.99, 5.9, 10.9492, -85.24, 166.504, 7.4, 179},
{61, 1, 22.61, 23.98, 55.1903, -102.95, 105.17, 7.5, 208},
{59, 1, 3.45, 3.82, 3.6728, -58.225, 102.433, 7.2, 183},
{55, 1, 21.72, 17.43, 28.9446, -82.2, 82.9366, 6.8, 181},
{69, 2, 7.76, 7.9, 34.6464, -102.45, 66.8613, 6.7, 195},
{42, 1, 3.98, 2.6, 1.88, -55.18, 21.19, 6.5, 230},
{57, 1, 17.76, 17.59, 33.6881, -94.18, 130.14, 7, 203},
{54, 1, 7.15, 5.04, 5.3112, -67.65, 95.3306, 7.1, 291},
{67, 2, 19.63, 18.82, 31.9832, -93.36, 174.909, 6.8, 214},
{63, 1, 18.81, 18.23, 35.5802, -97.14, 60.3482, 7.6, 183},
```

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 {68, 1, 2.98, 2.84, 1.733, -67.205, 66.7216, 7.1, 186},
 {69, 1, 8.22, 6.68, 16.2804, -88.01, 58.1747, 7.2, 189},
 {45, 1, 4.96, 3.53, 2.5533, -51.615, 53.3821, 6.5, 167},
 {50, 1, 6.16, 4.51, 8.6094, -63.32, 55.3515, 7.2, 214},
 {65, 1, 1.8, 0.6, 3.42, -67.88, 37.15, 7.2, 178},
 {54, 1, 2, 2.34, 2.99, -64.545, 96.4404, 6.5, 219},
 {61, 3, 3.84, 3.37, 12.1328, -76.76, 51.707, 7, 183},
 {50, 1, 5.4, 4.67, 3.4999, -54.955, 34.2625, 7, 188},
 {50, 1, 11.63, 11.06, 25.9609, -83.23, 82.6015, 7.8, 208},
 {52, 2, 1.89, 4, 2.27, -68.69, 95.09, 7, 192},
 {71, 1, 11.51, 9.75, 28.7491, -100.05, 132.3, 8.6, 201},
 {41, 1, 6.26, 6.93, 17.4407, -84.59, 97.3944, 6.6, 168},
 {59, 1, 4.1, 4.27, 7.0499, -83.03, 89.9458, 6.6, 172},
 {63, 1, 17.37, 12.08, 35.8158, -90, 67.7041, 6.6, 182},
 {37, 1, 7.1, 3.82, 9.8021, -98.1, 120.847, 7.5, 233},
 {75, 3, 21.25, 15.26, 23.7383, -101.48, 83.5078, 7.2, 157},
 {49, 1, 4.88, 4.51, 8.6445, -80.55, 124.496, 7, 160},
 {52, 1, 19.94, 18.19, 43.792, -90.05, 110.686, 7.7, 186},
 {47, 1, 11.42, 10.45, 14.7334, -88.54, 170.77, 7.5, 207},
 {70, 2, 16.97, 13.45, 21.2948, -89.47, 87.5651, 6.8, 276},
 {46, 1, 5.15, 4, 9.29, -80.84, 83.46, 6.6, 161},
 {72, 1, 5.13, 4.27, 13.126, -86.14, 59.2863, 7, 150},
 {63, 2, 9.29, 8.95, 17.8828, -100.62, 68.5781, 7.2, 207},
 {75, 1, 7.5, 6.34, 14.6561, -85.59, 138.66, 7.5, 190},
 {63, 1, 8.91, 6.7, 16.04, -91.66, 73.73, 6.7, 163}},
{{1, dAge}, {2, ArteryNumber}, {3, MaxRenalMedialFat}, {4, MedianMedialRenalFat},
 {5, AreaRenalFat}, {6, CTvalueRenalFat}, {7, AreaSubcutaFat}, {8, TP}, {9, TC}},
{0, 0, 1, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0,
 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0,
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 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 1, 0, 1, 0, 0, 1, 0, 1, 0, 1, 0,
 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 1, 0, 1, 0, 0, 0, 0, 0, 0, 0, 0},
OpeTime, {195, 150, 210, 120, 140, 180, 120, 210, 120, 140, 150, 150, 130,
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 180, 210, 110, 150, 180, 130, 100, 120, 130, 160, 200, 170, 140, 160, 300,
 120, 240, 210, 130, 120, 180, 140, 160, 170, 150, 120, 140, 150, 150, 90,
 180, 120, 120, 150, 240, 150, 180, 180, 210, 150, 150, 150, 130, 180, 120,
 150, 180, 150, 330, 150, 180, 360, 150, 210, 180, 100, 300, 100, 210, 180,
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 210, 130, 210, 120, 270, 190, 150, 100, 100, 180, 100, 180}, {0, 210, 1}}
```

BESTDATASET: The output by Optimize[]

Even if you cannot complete the above calculation with Optimeize[] function, The following two data, BESTDATASET and BESTDATA, allow you to use Discriminate[] function below.

BESTDATASET with 9 explanatory variables.

```
In[ ]:= BESTDATASET = {{{59, 1, 9.52`, 9.5`, 22.91`, -90.54`, 54.44`, 7, 186},
        {64, 1, 4.42`, 4.2`, 5.91`, -82.77`, 96.63`, 6.7`, 257},
        {57, 2, 9.87`, 8.7`, 17.05`, -83.21`, 73.75`, 6.6`, 200},
        {55, 1, 4.73`, 4.2`, 7.46`, -78.16`, 65.74`, 8, 223},
        {58, 1, 11.86`, 6.7`, 21.35`, -98.19`, 202.24`, 7.8`, 230},
        {65, 3, 5.12`, 2.3`, 8.34`, -76.93`, 38.65`, 7.1`, 243},
        {47, 2, 5.71`, 3.1`, 5.47`, -74.49`, 106.08`, 7, 164},
        {43, 2, 20.5`, 15.8`, 24.37`, -89.61`, 107.07`, 7.3`, 194},
        {39, 1, 2.51`, 1.9`, 1.64`, -58.86`, 39.79`, 7.3`, 194},
        {64, 1, 7.78`, 6.5`, 13.11`, -88.69`, 117.05`, 6.5`, 201},
        {48, 2, 6.23`, 2.9`, 4.25`, -80.29`, 134.22`, 7.7`, 163},
        {58, 2, 11.67`, 11.3`, 28.43`, -96.15`, 90.75`, 7.2`, 210},
        {52, 1, 8.14`, 4.7`, 11.18`, -96.46`, 100.84`, 7.1`, 196},
        {52, 2, 16.93`, 12.7`, 22.57`, -87.61`, 74.68`, 7.4`, 187},
        {57, 1, 8.64`, 5.6`, 12.88`, -96.41`, 161.97`, 6.6`, 229},
        {46, 1, 3.97`, 2.1`, 4.11`, -68.87`, 98.89`, 7.2`, 176},
        {47, 2, 10.24`, 7.5`, 14.27`, -93.47`, 100.44`, 7.4`, 200},
        {45, 1, 3.63`, 5.9`, 6.2`, -83.11`, 112.43`, 6.6`, 197},
        {58, 2, 4.84`, 1.9`, 4.94`, -79.79`, 76.97`, 6.5`, 210},
        {46, 1, 5.81`, 2.1`, 2.41`, -86.16`, 16.82`, 7.1`, 199},
        {56, 1, 9, 5, 11.87`, -89, 151.83`, 7.3`, 176},
        {57, 1, 15.93`, 15.6`, 45.39`, -95.03`, 230.49`, 7.2`, 239},
        {57, 4, 8.94`, 8.4`, 12.13`, -93.64`, 131.44`, 7.4`, 181},
        {58, 1, 8.41`, 6.6`, 9.58`, -79.67`, 73.37`, 7.3`, 214},
        {28, 1, 5.16`, 3.4`, 2.31`, -88.59`, 78.2`, 8, 165},
        {54, 2, 5.27`, 3.9`, 6.92`, -85.27`, 104.97`, 7.3`, 228},
        {67, 1, 6.78`, 4.8`, 5.85`, -79.71`, 69.17`, 7, 211},
        {76, 1, 8.12`, 4.5`, 14.55`, -88.72`, 86.2`, 6.6`, 174},
        {62, 1, 2.55`, 1.9`, 2.89`, -72.22`, 70.25`, 6.7`, 216},
        {57, 3, 17.58`, 15.5`, 39.93`, -96.34`, 78.36`, 6.8`, 203},
        {70, 2, 9.44`, 7.6`, 23.63`, -99.53`, 86.21`, 7.1`, 185},
        {59, 1, 7.13`, 5.2`, 25.76`, -103.37`, 114.51`, 7.8`, 243},
        {66, 1, 8.01`, 5.1`, 18.76`, -90.03`, 56.35`, 6.2`, 227},
        {41, 1, 5.13`, 4.4`, 7.46`, -69.525`, 41.13`, 7.2`, 160},
        {21, 1, 5, 3, 1.53`, -76.58`, 21.9`, 7, 219},
        {55, 2, 4.94`, 5, 6.37`, -88.31`, 83.62`, 7.1`, 169},
        {68, 1, 12.89`, 10.7`, 26.48`, -94.42`, 97.06`, 7.5`, 256},
        {54, 1, 4.54`, 2.1`, 8.54`, -83.13`, 132.66`, 6.8`, 216},
        {70, 1, 9.38`, 7.6`, 13.59`, -92.121`, 118.39`, 7.6`, 257},
        {45, 1, 8.75`, 4.9`, 8.91`, -79.77`, 48.9`, 7.1`, 221},
```

```
{48, 1, 3.11`, 1.2`, 1.51`, -70.36`, 55.68`, 6.9`, 228},
{60, 1, 4.66`, 3.6`, 13.89`, -101.38`, 74.58`, 6.7`, 194},
{41, 2, 11.51`, 7.4`, 25.83`, -92.19`, 99.83`, 7.5`, 145},
{65, 1, 5.15`, 2.5`, 6.74`, -86.14`, 65.86`, 7, 169},
{66, 2, 12.28`, 5.9`, 13.66`, -85.08`, 85.58`, 7.1`, 268},
{52, 1, 2.32`, 1.5`, 3.98`, -97.12`, 104.91`, 7.2`, 201},
{65, 1, 6.49`, 5, 11.21`, -83.86`, 103.3`, 7.5`, 269},
{66, 1, 4.04`, 1.9`, 3.32`, -85.93`, 45.4`, 6.9`, 208},
{55, 1, 11.03`, 7.6`, 22.36`, -96.57`, 93.42`, 7.2`, 215},
{49, 1, 6.94`, 2.4`, 1.42`, -70.26`, 95.45`, 7.3`, 198},
{47, 1, 5.65`, 3.9`, 13.01`, -85.81`, 53.24`, 7, 227},
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BESTDATA : The patients' data for the best model created by Optimize[] with 9 variables.

In[•]:=
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Discriminate[]

When you use Discriminate[] function just after executing Optimize[] successfully, you do not need to enter the output by Optimize[] in the first window. Instead, just press OK.
Otherwise, enter the output by Optimize[] or enter the BESTDATASET as shown above
after evaluating the cell where BESTDATASET = ... is defined.
During the calculation with Discriminate[], a patient's data is required.
If you use the BESTDATASET shown above, you can use a patient's data in BEST-DATA.
If you wan to choose the n-th patient's data, it is expressed as BESTDATA[[n]].
Double blanket in Mathematica like list[[3]] indicates the third row or in the matrix, list.
For example, the 10-th row in BESTDATA is shown as follows.

In[]:=
```
BESTDATA[[10]]
```

Out[]=
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{64, 1, 7.78, 6.5, 13.11, -88.69, 117.05, 6.5, 201}
```

1. Patient's name: John, ID: 123, Clinical Data: BESTDATA[[1]]

In[]:=
```
Discriminate[]
```

■ Dichotomous Assessment System

```
Patient's Name: John, ID: 123
Number of Traing Dataset: 128, Target vairalbe: OpeTime
Clinical data of John (ID 123):
(dAge ArteryNumber MaxRenalMedialFat MedianMedialRenalFat AreaRenalF
 59        1             9.52                9.5              22.91
```

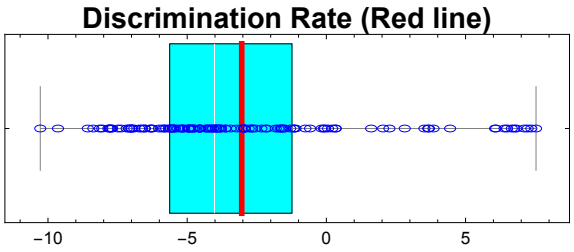
■ Dichotomous Prediction : OpeTime is probably less than 210.
(Negative Prediction rate is 100. % in Trainin data),
Discriminaiton index is -3.041
(negative: Not probable, positive: Probable)

□ **Ranking of Discrimination**

index: 53th (upper 41.09%) in 129 Training data

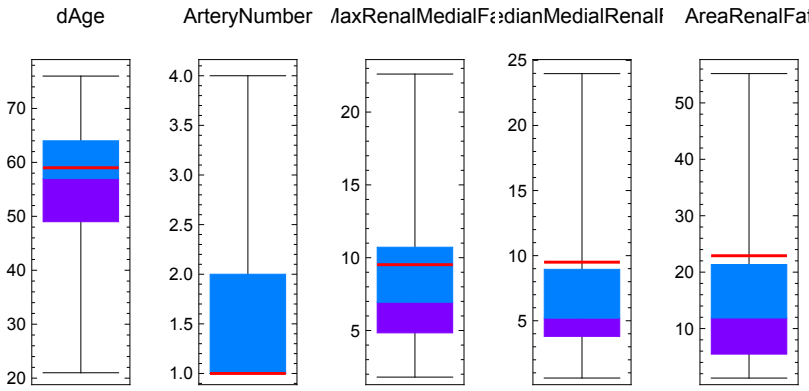
□ **Position of Discrimination**

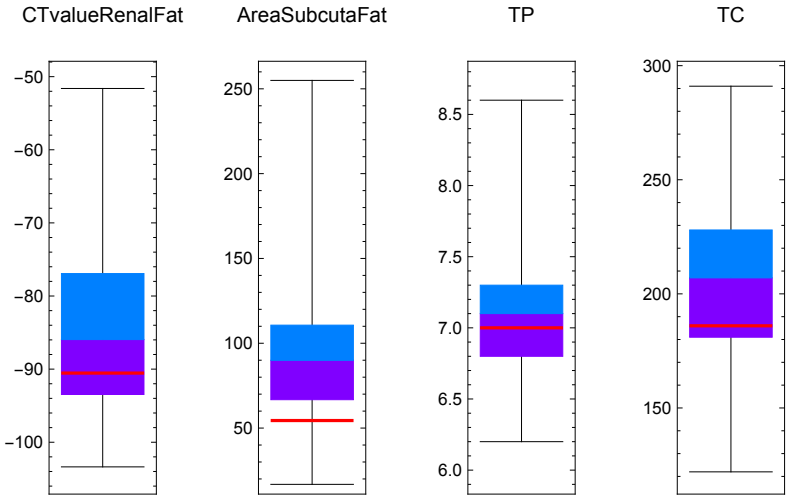
Index of this case in Traing data (RED line)



◇ **Horizontal axis: Discrimination index (Blue circles are those of training cases)**

□ **Distributions of each data in Training data and Those in this case (Red Line)**





□ **Comment: Moderate case**

2. Patient's name: Tom, ID: 456, Clinical Data: BESTDATA[[30]]

In[•]:= Discriminate[]

■ **Dichotomous Assessment System**

Patient's Name: Tom, ID: 456

Number of Traing Dataset: 128, Target vairalbe: OpeTime

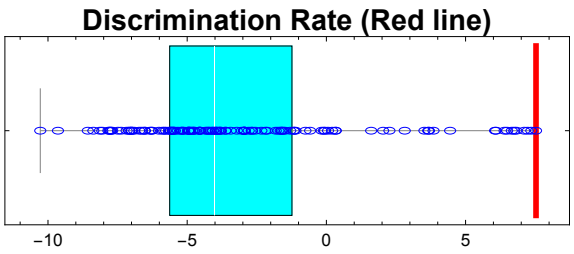
Clinical data of Tom (ID 456):

dAge	ArteryNumber	MaxRenalMedialFat	MedianMedialRenalFat	AreaRenalF
57	3	17.58	15.5	39.93

■ **Dichotomous Prediction : OpeTime is probably more than 210.**
(Positive Prediction rate is 100. % in Trainin data),
Discriminaiton index is 7.53
(negative: Not probable, positive: Probable)

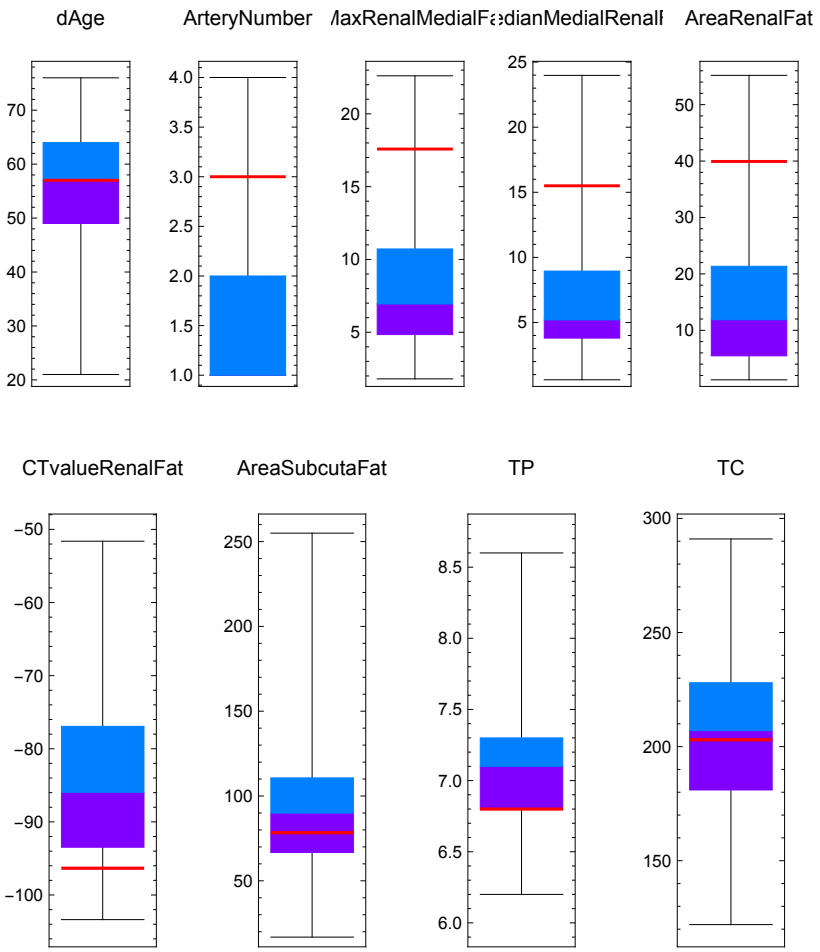
□ **Ranking of Discrimination**
index: 1st (upper 0.7752%) in 129 Training data

□ **Position of Discrimination**
Index of this case in Traing data (RED line)



◇ **Horizontal axis: Discrimination**
index (Blue circles are those of training cases)

□ **Distributions of each data in**
Training data and Those in this case (Red Line)



□ **Comment: Heavy workload case**

3. Patient's name: Linda, ID: 789, Clinical Data: BESTDATA[[71]]

In[•]:= `Discriminate[]`

■ Dichotomous Assessment System

Patient's Name: Linda, ID: 789

Number of Traing Dataset: 128, Target vairalbe: OpeTime

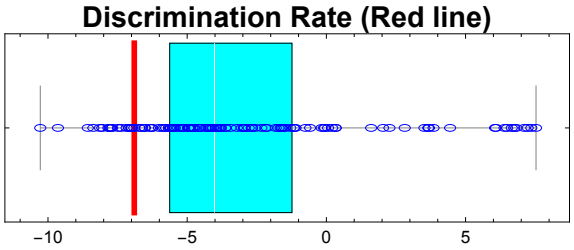
Clinical data of Linda (ID 789):

dAge	ArteryNumber	MaxRenalMedialFat	MedianMedialRenalFat	AreaRenalF
54	1	4.88	4.5	8.5828

■ Dichotomous Prediction : OpeTime is probably less than 210.
(Negative Prediction rate is 100. % in Trainin data),
Discriminaiton index is -6.901
(negative: Not probable, positive: Probable)

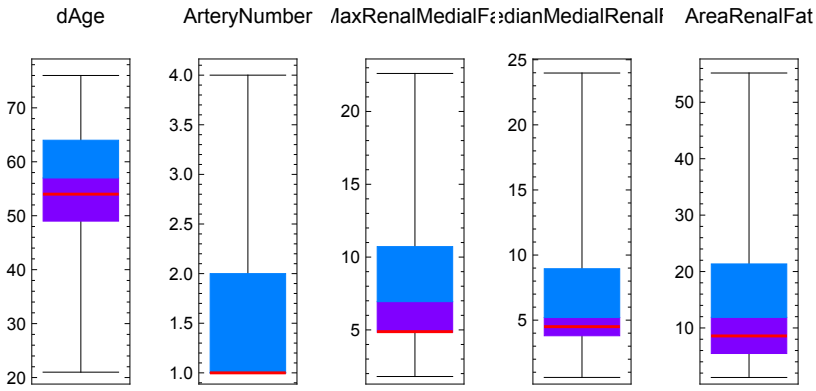
□ Ranking of Discrimination
index: 109th (upper 84.5%) in 129 Training data

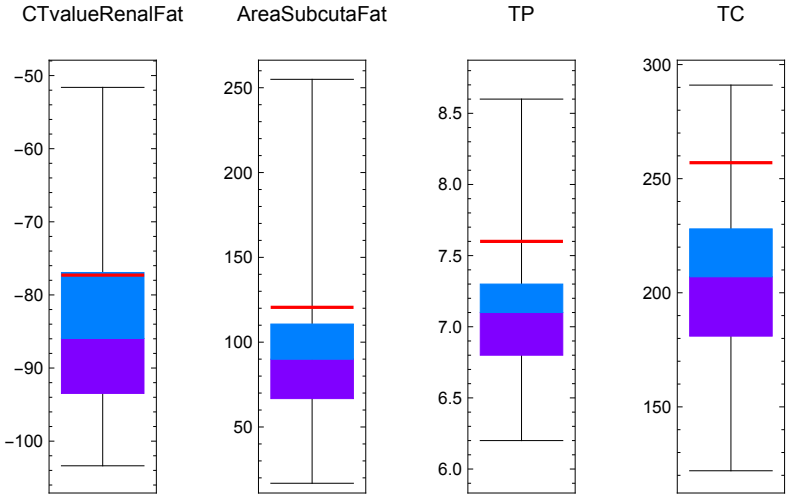
□ Position of Discrimination
Index of this case in Traing data (RED line)



◇ Horizontal axis: Discrimination
index (Blue circles are those of training cases)

□ Distributions of each data in
Training data and Those in this case (Red Line)





□ **Comment: Easy case**